

## ABSTRACT OF THE DISCLOSURE

5 A fuel gas production apparatus includes a reforming  
mechanism, a cooling mechanism connected an outlet side of  
the reforming mechanism and a PSA mechanism directly  
connected to the reforming mechanism through the cooling  
mechanism. The reforming mechanism uses an auto-thermal  
reforming system for reforming a fuel to obtain a reformed  
gas. The cooling mechanism cools the reformed gas to a  
10 predetermined temperature. After the reformed gas is cooled  
by the cooling mechanism, the PSA mechanism removes  
impurities from the reformed gas to produce a hydrogen-rich  
pure fuel gas.